

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
United States Patent and Trademark
Office
Box PCT
Washington, D.C.20231
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing: 15 June 2000 (15.06.00)	
International application No.: PCT/JP99/06881	Applicant's or agent's file reference: FJ001PCT
International filing date: 08 December 1999 (08.12.99)	Priority date: 09 December 1998 (09.12.98)
Applicant: SEKI, Tatsuji et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International preliminary Examining Authority on:

31 March 2000 (31.03.00)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer: J. Zahra Telephone No.: (41-22) 338.83.38
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PATENT COOPERATION TREATY PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference FJ001PCT	FOR FURTHER ACTION <small>see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.</small>	
International application No. PCT/JP 99/06881	International filing date (day/month/year) 08/12/1999	(Earliest) Priority Date (day/month/year) 09/12/1998
Applicant SEKI, Tatsuji et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☒ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☒ furnished subsequently to this Authority in computer readable form.

☒ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☒ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

A METHOD FOR MANUFACTURING GLYCOPROTEINS HAVING HUMAN-TYPE GLYCOSYLATION

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/JP 99/06881

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 C12N15/82 C12N9/10

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 IPC 7 C12N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 97 04122 A (UNIV WASHINGTON ; LEE JAMES M (US); MAGNUSON NANCY S (US); AN GYNHE) 6 February 1997 (1997-02-06) page 5, line 13 - line 14 page 18, line 5 - line 8	
X,P	PALACPAC N. ET AL.: "Stable expression of human beta-1,4-galactosyltransferase in plant cells modifies N-linked glycosylation patterns" PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF USA, vol. 96, April 1999 (1999-04), pages 4692-4697, XP002136340 WASHINGTON US the whole document	1-14



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

*** Special categories of cited documents :**

- "A" document defining the general state of the art which is not considered to be of particular relevance
 "E" earlier document but published on or after the international filing date
 "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
 "O" document referring to an oral disclosure, use, exhibition or other means
 "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
 "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

25 April 2000

Date of mailing of the international search report

10/05/2000

Name and mailing address of the ISA

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 NL - 2280 HV Rijswijk
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Authorized officer

Panzica, G

INTERNATIONAL SEARCH REPORT

International Application No.

JP 99/06881

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A,P	WO 99 38987 A (MERISTEM THERAPEUTICS ;OLAGNIER BEATRICE (FR); MEROT BERTRAND (FR)) 5 August 1999 (1999-08-05) page 5, paragraph 3 -page 7 ---	
A,P	DE 197 54 622 A (SCHAEWEN ANTJE VON DR) 10 June 1999 (1999-06-10) the whole document -----	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/JP 99/06881

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
WO 9704122	A	06-02-1997	AU	6504796 A	18-02-1997
WO 9938987	A	05-08-1999	FR	2774379 A	06-08-1999
			AU	2169399 A	16-08-1999
DE 19754622	A	10-06-1999	AU	2268899 A	28-06-1999
			WO	9929879 A	17-06-1999

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference FJ001PCT	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/JP99/06881	International filing date (day/month/year) 08/12/1999	Priority date (day/month/year) 09/12/1998
International Patent Classification (IPC) or national classification and IPC C12N15/82		
Applicant SEKI, Tatsuji et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 5 sheets, including this cover sheet.

- ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand 31/03/2000	Date of completion of this report 26.03.2001
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Zellner, E Telephone No. +49 89 2399 8427 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/JP99/06881

I. Basis of the report

1. This report has been drawn on the basis of *(substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments (Rules 70.16 and 70.17).)*:

Description, pages:

1-43 as originally filed

Claims, No.:

1-14 as originally filed

Drawings, sheets:

1/21-21/21 as originally filed

Sequence listing part of the description, pages:

1-8, filed with the letter of 28.03.00

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☒ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/JP99/06881

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-12
	No:	Claims	13,14
Inventive step (IS)	Yes:	Claims	1-12
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-14
	No:	Claims	

2. Citations and explanations
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/JP99/06881

Reference is made to the following documents:

D1: WO 97 04122 A (UNIV WASHINGTON ;LEE JAMES M (US); MAGNUSON NANCY S (US); AN GYNHE) 6 February 1997 (1997-02-06)

Item V

1. Claims 13 and 14 are not allowable under Article 33 (2) PCT.
Any glycoprotein known having a human type sugar chain, also those isolated from bacteria which are glycosylated by chemical means fall under the definition of said claims. Therefore said claims are not novel (see also item VIII).
2. The closest prior art document is represented by D1. Said document describes the expression of mammalian polypeptides in plant cells. In difference to the present application no human type sugar chains are produced by the insertion of an additional gene into the plant cell such as a glycosyltransferase.
The problem can thus be defined as the production of polypeptides in plants having a human or mammalian like sugar chain.
The problem is solved by the insertion of additional genes such as human glycosyltransferase and a foreign gene such as horseradish peroxidase (HRP) into tobacco cells (Example 4). Analysis of the sugar chains on HRP revealed that said chains consist of mammalian type and not of plant type sugar residues (Example 7). Therefore the problem has been solved.
There is no other relevant document cited in the Search Report.
Therefore Claims 1 - 12 appear to be novel and inventive.

Item VIII

1. The present claims 1-14 are not sufficiently disclosed over the whole area as defined by said claims.
In the description of the present application no true human or mammalian polypeptides are successfully glycosylated. The description only focuses on plant polypeptides such as horseradish peroxidase exhibiting a mammalian type sugar chain.
It is not disclosed that mammalian polypeptides with a mammalian glycosylation

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/JP99/06881

pattern can be isolated.

Therefore the present claims are objected to under Article 5 PCT.

2. Claims 13 and 14 represent product by process claims. Said claims are only allowable if the products as such are novel and inventive and if the products cannot be defined by technical features (Art. 6 PCT).
3. Claim 8 is not defined by true technical features but more by a result to be achieved which is not allowable under Article 6 PCT. In order to render said claim more clear the features of Claims 9 and 10 should be included.